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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/475,704	12/30/1999	SUSAN W. BARNETT	1631.002	6738

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EXAMINER	
WHITEMAN, BRIAN A	

ART UNIT	PAPER NUMBER
1635	

DATE MAILED: 08/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/475,704	BARNETT ET AL.	
	Examiner	Art Unit	
	Brian Whiteman	1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,4-10,24-43,49-60,63-66 and 68-75* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *69,71,73* is/are allowed.

6)☒ Claim(s) *2,4,5,7-10,24-43,49-60,63-66,68,70,72,74* is/are rejected.

7)☒ Claim(s) *6 and 75* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 2, 4-10, 24-43, 49-60, 63-66, and 68-75 are pending.

Applicant's traversal and the amendment to claims 2, 4-7, 8, 9, 41, in paper filed on 5/19/06 is acknowledged and considered by the examiner.

Priority

The instant claims have priority to application 60/152,195 filed on 9/1/99.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2, 4, 7-10, 24-43, 49-60, and 63-66 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 2, 4, 7-10, 24-43, 49-60, and 63-66, as best understood, are readable on a genus of a polynucleotide sequence having at least 90% sequence identity to SEQ ID NO: 3 or 4 and encodes an immunogenic HIV Gag polypeptide, wherein the genus of polynucleotide sequences is not claimed in a specific biochemical or molecular structure that could be envisioned by one skilled in the art at the time the invention was made are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a

way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The instant claims embrace a genus of a polynucleotide sequence encoding a polypeptide including an immunogenic HIV Gag polypeptide, wherein the polynucleotide sequence encoding said Gag polypeptide comprises a nucleotide sequence having at least 90% sequence identity to the sequence presented in SEQ ID NO: 3 or 4. The term "encodes an immunogenic HIV Gag polypeptide, wherein the polynucleotide sequence encoding said Gag polypeptide comprises a nucleotide sequence having at least 90% sequence identity to SEQ ID NO: 3 or 4" indicates that claims 2 and 4 (and claims dependent therefrom that are not limited to SEQ ID NO: 3 and 4) are broader than SEQ ID NO: 3 or 4. The specification does not define the term "an immunogenic HIV Gag polypeptide". The specification defines an "immunological response" as humoral and/or cellular immune response (page 14) and the cellular immune response could include a response with CD4+ cells and/or CD8+ cells. Furthermore, the claimed polynucleotide encodes an HIV polypeptide with Gag activity. The specification does not disclose how to make a genus of HIV polypeptides that elicit a Gag immune response and is also at least 90% identical to the claimed sequences. One skilled in the art can envision a sequence that is at least 90% identical to the claimed SEQ ID NOs., but would be unable to determine without further experimentation if the sequence had a function (e.g., exhibit increased potency for induction of CTL response and humoral immune response) that was considered part of the claimed genus of DNA molecules. The specification does not disclose how to make the claimed genus of polynucleotides encoding polypeptides having Gag immune activity. Furthermore, the instant specification and the prior art of record do not disclose which nucleotides or amino acids are considered essential for the

immunogenic HIV Gag polypeptide retaining Gag activity. For example, the specification does not disclose what peptides encoded by SEQ ID NOs: 3 or 4 elicit a Gag immune response and has a Gag activity. Furthermore, the instant specification and the art of record teach that Gag proteins of HIV are necessary for the assembly of virus-like particles and HIV Gag proteins are involved in many stages of the life cycle of the virus including assembly, virion manufacture after particle release, and early post-entry step in virus replication. The role of HIV Gag proteins are numerous and complex (IDS, Freed, Virology, 1998). The specification contemplates that synthetic HIV Gag polypeptides can be measured for virus-like particle (VLP) production (page 29). In addition, on the amino acid level, there is even a larger variation than 90% identity to the polynucleotide sequences (70% with respect to substitutions and not including deletions and insertions), indicating a variation in the claimed genus of polynucleotide sequences. Determining 70% identity at the amino acid level from 90% at the polynucleotide level was based on the following: substituting 100 nucleotides of a 1,000 base pair polynucleotide sequence is a sequence with 90% identity to the 1,000 base pair polynucleotide sequence. The polypeptide sequence encoded by the polynucleotide sequence with 90% identity would have a polypeptide with 333 amino acids. Substitute one polynucleotide in 100 codons of the polynucleotide with 90% identity would be a polypeptide with 30% substitution. Thus, in view of the reasons set forth above and the numerous and complex functions of HIV Gag polypeptides, the variation within the claimed genus of polynucleotide sequences, the specification does not disclose which activities of HIV correspond to the claimed genus of polynucleotides with 90% sequence identity to the claimed SEQ ID NOs 3 and 4.

It is apparent that on the basis of applicants' disclosure, an adequate written description of the invention defined by the claims requires more than a mere statement that it is part of the invention and reference to potential methods and/or molecular structures of molecules that are essential for the genus of polynucleotide sequences as claimed; what is required is the knowledge in the prior art and/or a description as to the availability of a representative number of species of biochemical or molecular structures of polynucleotide sequences that must exhibit the disclosed biological functions as contemplated by the claims.

The mere contemplation of the claimed genus in the specification is not sufficient to support the present claimed invention directed to a genus of a polynucleotide sequence encoding an immunogenic HIV Gag polypeptide, wherein the polynucleotide sequence encoding said polypeptide comprises a nucleotide sequence having at least 90% sequence identity to the sequence presented in SEQ ID NO: 3 or 4. The claimed invention as a whole is not adequately described if the claims require essential or critical elements, which are not adequately described in the specification and which is not conventional in the art as of applicant's effective filing date. Claiming a genus of polynucleotide sequences that must possess the biological properties as contemplated by applicants' disclosure without defining what means will do so is not in compliance with the written description requirement. Rather, it is an attempt to preempt the future before it has arrived. (See *Fiers v. Revel*, 25 USPQ2d 1601 (CA FC 1993) and *Regents of the Univ. Calif. v. Eli Lilly & Co.*, 43 USPQ2d 1398 (CA FC, 1997)). Possession may be shown by actual reduction to practice, clear depiction of the invention in a detailed drawing, or by describing the invention with sufficient relevant identifying characteristics such that a person skilled in the art would recognize that the inventor had possession of the claimed invention. Pfaff

v. Wells Electronics, Inc., 48 USPQ2d 1641, 1646 (1998). The skilled artisan cannot envision the detailed structure of a genus of a polynucleotide sequence encoding an HIV polypeptide that elicits a Gag-specific immune response, wherein the polynucleotide sequence encoding said polypeptide comprises a nucleotide sequence having at least 90% sequence identity to the sequence presented in SEQ ID NO: 3 or 4 that must exhibit the contemplated biological functions, and therefore, conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the structures and/or methods disclosed in the as-filed specification. Thus, in view of the reasons set forth above, one skilled in the art at the time the invention was made would not have recognized that applicant was in possession of the claimed invention as presently claimed.

Applicant's arguments filed 5/19/06 have been fully considered but they are not persuasive.

The argument addresses both written description and enablement rejections at the same time. The examiner is not sure about whether some arguments are directed toward the written description and not the enablement and vice versa. "The written description requirement is separate and distinct from the enablement requirement." See In re Barker, 559 F.2d 588, 194 USPQ 470 (CCPA 1977), cert. denied, 434 U.S. 1064 (1978); Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1562, 19 USPQ2d 1111, 1115 (Fed. Cir. 1991). The examiner will do his best to respond to the arguments directed to written description and not enablement. In view of the prosecution history of the instant application, it appears that the majority of applicant's arguments against the written description rejection have already been addressed in prior office actions. See office actions mailed on 2/6/03, 11/16/05, 7/30/04 and 11/17/03.

In response to applicant's argument that the claims do not encompass any nucleotide sequence having 90% identity to the recited sequence because the sequence must also encode an immunogenic Gag polypeptide, the argument is not found persuasive because the majority of polypeptides including Gag polypeptides are considered immunogenic when administered to a particular host. The limitation "immunogenic" does not limit the genus to only immunogenic polypeptides with any biological activity. The claims still read on a genus of polynucleotides encoding a Gag polypeptide that elicits an immune response and has a biological function of a wild type Gag polypeptide. Thus, the limitation "immunogenic" does not limit the genus as asserted by applicant.

In response to applicant's argument that six representative examples of sequences falling within the scope of the claims are provided in the specification and a representative number of species is provided in the specification, the argument is not found persuasive for the reasons of record. See office action mailed on 11/17/03 (pages 6-10). See also In re Curtis, 354 F.3d 1347, 1358, 69 USPQ2d 1274, 1282 (Fed. Cir. 2004).

Applicant argues that in view of the Capon v. Esshar, 76 USPQ2d 1078, 1085 (CA FC 2005), the claims have meet the written description requirement.

The argument is not found persuasive because the scenario in Capon v. Esshar was directed to an interference between two application involving written description for two known proteins used to make a fusion protein. The applications discussed in the court case were not directed to determining written description for a genus of a polynucleotide sequence having at least 90% sequence identity to SEQ ID NO: 3 or 4 and encodes an immunogenic HIV Gag

polypeptide. Thus, the reasoning in Capon v. Esshar cannot be extrapolated to the instant claims and each application is examined on its own merits.

In response to applicant's argument based on PTO materials on written description, the argument is not found persuasive for the reasons of record. See office action mailed on 7/30/04 (pages 8-9).

In response to applicant's argument that the skilled artisan can "envision" every embodiment encompassed by the claims and "conception" is not relevant to a written description in inquiry, the argument is not found persuasive for the reasons set forth in office action mailed on 11/17/03 (pages 5-11).

In response to applicant's argument against the examiner incorrectly applying Eli Lilly in the written description rejection, the argument is not found persuasive for the reasons of record. See office action 7/30/04 (pages 10-11).

In response to applicant's argument that Gag proteins having Gag activity are irrelevant to the instant claims because the role of the proteins in the instant claims is immunogenicity, the argument is not found persuasive because the claims still read on a genus of polynucleotides encoding a Gag polypeptide that elicits an immune response and has a biological function of a Gag polypeptide. As mentioned above, immunogenicity is a property of almost all proteins and does not limit the genus of claimed polynucleotides.

In response to applicant's argument that Declaration Evidence of Record has not been properly considered, the argument is not found persuasive for the reasons of record. See office actions mailed on 7/30/04 (pages 11-13) and 2/6/03 (page 7).

Claims 2, 4, 7-10, 24-43, 49-60, and 63-66 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for making and using an expression cassette comprising the polynucleotide sequence set forth in SEQ ID NOs: 3 or 4, does not reasonably provide enablement for a polynucleotide sequence encoding an immunogenic HIV Gag polypeptide, said polypeptide comprises a nucleotide sequence having at least 90% sequence identity to the sequence presented in SEQ ID NO: 3 or 4. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

> Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized in In re Wands, 858 F.2d 731, 8USPQ2d 1400 (Fed. Cir. 1988). They include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

The invention lies in the field of producing an immunogenic composition using an expression cassette comprising an HIV Gag polypeptide set forth in SEQ ID NOs: 3 or 4.

In the specification, the applicants contemplate: 1) Expression assays for the synthetic coding region of Gag and Gag-protease expression cassettes; 2) In vivo immunogenicity of Gag expression cassettes using plasmid DNA carrying the synthetic Gag expression cassette; 3) In vitro expression of recombinant alphavirus vectors or plasmid containing the synthetic Gag expression cassette; 4) In vivo immunogenicity of recombinant Sindbis replicon vectors containing Gag expression cassettes in mice by using intramuscular and subcutaneous routes.

The applicants further claim that these experiments will exhibit increased potency for induction of cytotoxic T-lymphocytes (CTL) response and humoral immune response by using the Gag expression cassette.

The specification provides sufficient guidance for one skilled in the art to make an immunogenic composition comprising an expression cassette comprising of SEQ ID NO: 3 or 4. However, the specification does not provide sufficient guidance and/or factual evidence for one skilled in the art to make and/or use a sequence having at least 90% identity to any of the sequences presented as SEQ ID NO: 3 or 4 other than the sequences themselves.

The claimed invention is directed to a genus of polynucleotide sequence comprises a nucleotide sequence having at least 90% sequence identity to SEQ ID NO: 3 and encodes an immunogenic HIV Gag polypeptide. The specification does not define the term "an immunogenic HIV Gag polypeptide". The specification defines an "immunological response" as humoral and/or cellular immune response (page 14) and the cellular immune response could include a response with CD4+ cells and/or CD8+ cells. The specification does not disclose which nucleotides are considered essential for an immunogenic Gag polypeptide.

In addition, the nature of the invention is directed to a polynucleotide sequence encoding an HIV Gag, wherein the polynucleotide comprises a nucleic acid sequence that has 90% identity to SEQ ID NO: 3 and 4. The scope of the invention is very broad, encompassing a large number of polynucleotide sequences that may or may not encode an HIV Gag polypeptide that may or may not have the desired activity. A search of SEQ ID NO: 4 (1509 nucleotides) indicates that SEQ ID NO: 3 (1479 nucleotides) is 84.6% identical to SEQ ID NO: 4. The same nucleotide search of SEQ ID NO: 4 indicates that it has 98.7% sequence identity to SEQ ID NO: 21 and

83.6% sequence identity to SEQ ID NO: 20. Other than the nucleic acid sequences of SEQ ID NO: 3 and 4 and fragments of SEQ ID NO: 3 (SEQ ID NO: 1) or SEQ ID NO: 4 (SEQ ID NO: 2); and SEQ ID NO: 20 and 21, the specification fails to disclose any other nucleic acid sequences encoding a polypeptide with Gag activity. It is known for nucleic acids as well as proteins, for example, that even a single nucleotide or amino acid change or mutation can destroy the function of the biomolecule in many instances, albeit not in all cases. The effects of these changes is largely unpredictable as to which ones have a significant effect versus not. Several publications document this unpredictability of the relationship between sequence and function, albeit that certain specific sequences may be found to be conserved over polypeptides of related function upon a significant amount of further research. See the following publications that support this unpredictability as well as noting certain conserved sequences in limited specific cases: Baker et al., Science, 294:pages 93-96, 2001); Attwood, T (*Science*, vol. 290, no. 5491, pp. 471-473, 2000); Gerhold et al., (*BioEssays*, vol. 18, no. 12, pp. 973-981, 1996); Russell et al., *Journal of Molecular Biology*, vol. 244, pp 332-350, 1994); and Wells et al., *Journal of Leukocyte Biology*, vol. 61, no. 5, pp. 545-550, 1997). Also, since the relationship of the sequence of a peptide and its tertiary structure (*e.g.* its activity) are not well understood and are not predictable (Ngo et al. The Protein Folding Problem and Tertiary Structure Prediction, 1994, Merz et al (ed.), Birkhauser, Boston, MA, pp. 433 and 492-495), it would require an undue amount of experimentation for one skilled in the art in view of the prior art to arrive at other sequences that have at least 90%

sequence identity to the polypeptide encoded by SEQ ID NOs: 3 and 4 and still possess HIV Gag polypeptide activity.

In addition, the claims are broader than the guidance or factual evidence provided by the as-filed specification because the claims embrace a polypeptide with 70% identity to the HIV polypeptide encoded by SEQ ID NOs: 3 and 4. There is no guidance in the specification as to which amino acids encoded by the polynucleotide sequence set forth SEQ ID NO: 3 or SEQ ID NO: 4 may be changed while endogenous HIV Gag activity is retained and the HIV polypeptide is still immunogenic. As stated above, the teaching in the as-filed specification does not commensurate in scope with the claims because the breadth of the claims embrace a large number of possible sequences that differ from the polynucleotide sequence set forth in SEQ ID NO: 3 and 4. The claims are broader than the 90% limitation set forth in the claims because the polypeptide sequences embraced by the polynucleotide sequences having 90% identity to SEQ ID NO: 3 and 4 can have a substitution of at least 30% of the amino acids of the polypeptides encoded by the claimed sequences, which would be a substitution of up to 150 amino acids of the polypeptide encoded by either SEQ ID NO: 3 or 4. The number of single amino acid substitutions for an amino acid sequence encoded by the polynucleotide sequence set forth in SEQ ID NO: 3 or 4 is 9,500. The number of two amino acids substitutions for an amino acid sequence encoded by SEQ ID NO: 3 or 4 is over 9.0×10^7.

To determine the number of possible amino acid sequences encoded by the polypeptide encoded by the polynucleotide sequence set forth in SEQ ID NO:

3 or 4, N, with substitutions, one skilled in the art would use the formula [(N=x^nL!/n!(L-n)!), where x=19 (number of possible amino acids that could replace an amino acid at any one position in the polypeptide encoded by SEQ ID NO: 3 or 4), L=500 (estimated amino acid length of the polypeptide encoded by SEQ ID NO: 3 or 4), n=150,] or $1.1x10^{323}$ possible sequences.

This is a lower limit of the number of possible sequences because the claims also embrace insertions or deletions of amino acids in the polypeptide sequence encoded by SEQ ID NO: 3 or 4 that the equation does not take into account.

In conclusion, the instant specification and the claims coupled with the art of record at the time the invention was made only provide sufficient guidance and/or evidence to reasonably enable making and using an expression cassette comprising the polynucleotide sequence set forth in SEQ ID NOs: 3 and 4, does not reasonably provide enablement for a polynucleotide sequence encoding an immunogenic HIV Gag polypeptide, wherein the polynucleotide sequence encoding said polypeptide comprises a nucleotide sequence having at least 90% sequence identity to the sequence presented in SEQ ID NO: 3 or 4. One would have to engage in a large quantity of excessive and undue experimentation in order to practice the claimed invention based on the In Re Wands Factors including the lack of guidance in the application's disclosure, the unpredictability of producing nucleotide sequences encoding a HIV polypeptide with 90% sequence identity to the claimed SEQ ID NOs. In addition, the prophetic examples as provided in the specification do not reasonably extrapolate to the full scope of the claimed invention because one skilled in the art

would have to make a nucleotide sequence and determine if the sequence meets the limitations set forth in the claims.

Applicant's arguments filed 5/19/06 have been fully considered but they are not found persuasive because in view of the In Re Wands Factors, the instant specification does not provide sufficient guidance for one skilled in the art to practice the full scope of the claimed invention.

In response to applicant's argument that the claims do not encompass any nucleotide sequence having 90% identity to the recited sequence because the sequence must also encode an immunogenic Gag polypeptide, the argument is not found persuasive because the majority of polypeptides including Gag polypeptides are considered immunogenic when administered to a particular host. The limitation "immunogenic" does not limit the genus to only immunogenic polypeptides with any biological activity. The claims still read on a genus of polynucleotides encoding a Gag polypeptide that elicits an immune response and has a biological function of a natural Gag polypeptide.

In response to applicant's argument that six representative examples of sequences falling within the scope of the claims are provided in the specification and a representative number of species is provided in the specification, the argument is not found persuasive for the reasons of record. See office action mailed on 11/17/03 (pages 13-15).

In response to applicant's argument that in view of Patent Office Guidelines Training Materials on Enablement, the instant claims are fully enabled, the argument is not found persuasive because the instant claims read on significant numbers of inoperative embodiments and would render claims non-enabled because the specification does not clearly identify the operative embodiments and undue experimentation is involved in determining those that are

operative. See *Atlas Powder Co. v. E.I. duPont de Nemous & Co.*, 750 F.2d 1569, 1577, 224 USPQ 409, 414 (Fed. Cir. 1984); *In re Cook,* 439 F.2d 730, 735, 169 USPQ 298, 302 (CCPA 1971); see also MPEP Section 2164.08(b). See TRAINING MATERIALS FOR EXAMINING PATENT APPLICATIONS WITH RESPECT TO 35 U.S.C. SECTION 112, FIRST PARAGRAPH-ENABLEMENT OF CHEMICAL/BIOTECHNICAL APPLICATIONS. Example N, claim 3. (http://www.uspto.gov/web/offices/pac/dapp/1pecba.htm#7n).

In response to applicant's argument that Declaration Evidence of Record has not been properly considered, the argument is not found persuasive for the reasons of record. See office actions mailed on 7/30/04 (pages 26-29), 11/17/03 (pages 18-19) and 2/6/03 (pages 12-13).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 2, 4, 5, 24, 25, 41-43, 68, and 74 remain provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 26, 28, 31-50, and 72 of copending Application No. 09/967,464.

The claims from the instant application are directed to an expression cassette comprising a nucleotide sequence encoding a Gag polypeptide, wherein the nucleotide sequence encoding said Gag polypeptide comprises a nucleotide sequence having at least 90% sequence identity to claimed SEQ ID NOs: 3 and 4.

The claims from copending application '464 (claims 26, 28, 31-34, 37-41, 45-50, and 72) claim a microparticle comprises a vector comprising a heterologous nucleic acid sequence that encodes an HIV Gag polypeptide. More specifically, claim 72 specifically recites a microparticle comprising a vector comprising a nucleic acid sequence having a sequence having at least 90% identity to nucleotides 844-903 of SEQ ID NO: 63 (100% identity with SEQ ID NO: 3 of the instant invention), nucleotides 82-1512 of SEQ ID NO: 68 (and 99% identity to SEQ ID NO: 4 of the instant invention). However, the claims from '464 do not specifically recite an expression construct comprising a promoter operably linked to the nucleic acid sequence as recited in instant claims 24 and 25. However, one of ordinary skill in the art would understand that a promoter is required to express the nucleic acid sequence in a cell. Thus, it would have been obvious to one of ordinary skill in the art to operably linked a promoter to the nucleic acid sequence. Claim 39 from '464 specifically recites the limitation in instant claim 42. Claim 37 recites the limitation in instant claim 43. Thus, the instant claims and the claims from '464 are obvious variants of one another.

This is a provisional obviousness-type double patenting rejection.

Applicant's arguments filed 5/19/06 have been fully considered but they are not persuasive.

It is noted that the rejection be held in abeyance until there is an indication of allowable subject matter in either the present application or '464 application.

Claims 2 and 24-25 remain provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 26, 28, 31-50, and 72 of copending Application No. 09/967,464 in view of Tartaglia et al. (US 5,990,091) and Corbin et al. (US 6,489,542).

The claims from'464 do not specifically recite an expression cassette comprising control elements as recited in instant claims 24 and 25.

However, Tartaglia et al. teach making and using a plasmid comprising a polynucleotide encoding HIV polypeptide. Tartaglia does not specifically teach the control elements in instant claim 25. However, Corbin teaches that the control elements recited in instant claim 25 were readily available to one of ordinary skill in the art for making a plasmid comprising the control elements. Thus, it would have been obvious to one of ordinary skill in the art to make and use a plasmid comprising the control elements recited in instant claim 25 for expressing the polynucleotide in a cell. Thus, the instant claims 2, 24 and 25 are obvious variants of the claims from '464 in view of Tartaglia et al. and Corbin et al.

This is a provisional obviousness-type double patenting rejection.

Applicant's arguments filed 5/19/06 have been fully considered but they are not persuasive because the argument was already addressed in the examiner's response to the previous provisional double patenting rejection.

Claims 2 and 24-26 remain provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 26, 28, 31-50, and 72 of copending Application No. 09/967,464 in view of Tartaglia et al. (US 5,990,091) and Corbin et al. (US 6,489,542) either Sikic et al. (US 5,830,697) or Dubensky et al. (US 6,391,632).

The claims from '464 and Tartaglia and Corbin do not specifically recite an expression cassette comprising control elements as recited in instant claim 26.

However, the promoters recited in instant claim 26 were readily available to one of ordinary skill in the art for making a plasmid comprising the promoters as exemplified by Sikic et al., column 4 and Dubensky et al., columns 22, 26, and 87-88. Thus, it would have been obvious to one of ordinary skill in the art to make and use a plasmid comprising the promoters recited in instant claim 26 for expressing the polynucleotide in a cell. Thus, the instant claims 2 and 24-26 are obvious variants of the claims from '464 in view of Tartaglia et al. and Corbin et al. and either Sikic et al. or Dubensky et al.

This is a provisional obviousness-type double patenting rejection.

Applicant's arguments filed 5/19/06 have been fully considered but they are not persuasive because the argument was already addressed in the examiner's response to the previous provisional double patenting rejection.

Claims 2 and 27-40 remain provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 26, 28, 31-50, and 72 of copending Application No. 09/967,464 in view of ATCC catalog of cell lines and hybridomas

(7th edition, Maryland, 1992, pages 70, 79, 148, 150, 158, 164, 194, 299, 308, and 456); Helting et al. (US 5,470,720); and Adams et al. (IJ-1).

The claims from '464 do not specifically recite a cell comprising the expression cassette as recited in instant claims 27-40.

However, the cell lines recited in instant claims 27-40 were readily available to one of ordinary skill in the art as taught in the instant specification (pages 30-31) and the prior art as exemplified by ATCC catalog of cell lines and hybridomas, Helting et al. and Adams et al. for producing a cell line selected from instant claims 27-40. Thus, it would have been obvious to one of ordinary skill in the art to make and use a cell comprising a plasmid comprising the promoters recited in instant claims 27-40 for expressing the polynucleotide in a cell in vitro. Thus, the instant claims 2 and 27-40 are obvious variants of the claims from '464 in view of ATCC catalog of cell lines and hybridomas, Helting et al. and Adams et al.

This is a provisional obviousness-type double patenting rejection.

Applicant's arguments filed 5/19/06 have been fully considered but they are not persuasive because the argument was already addressed in the examiner's response to the previous provisional double patenting rejection.

Claims 68 and 70 remain provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 26, 28, 31-50, and 72 of copending Application No. 09/967,464 in view of Rovinski et al (BS-1).

The claims from either '464 or '453 do not specifically recite the expression cassette further comprising a nucleotide sequence encoding an HIV protease polypeptide.

However, Rovinski teaches recombinant nucleic acid encoding HIV gag and HIV protease and using the nucleic acid to produce a non-infectious retrovirus. Thus, it would have been obvious to one of ordinary skill in the art to make and use a vector comprising a nucleic acid encoding an HIV gag (SEQ ID NO: 3) and a nucleic acid encoding an HIV protease to produce a retrovirus as taught by Rovinski. Thus, the instant claims 68 and 70 are obvious variants of the claims from '464 in view of Rovinski.

This is a provisional obviousness-type double patenting rejection.

Applicant's arguments filed 5/19/06 have been fully considered but they are not persuasive because the argument was already addressed in the examiner's response to the previous provisional double patenting rejection.

Claims 68 and 72 remain provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 26, 28, 31-50, and 72 of copending Application No. 09/967,464 in view of Rovinski et al. (BE-1).

The claims from '464 do not specifically recite the expression cassette further comprising a nucleotide sequence encoding an HIV polymerase polypeptide.

However, Rovinski teaches recombinant nucleic acid encoding HIV gag and HIV polymerase. Rovinski teaches producing a non-infectious HIV particle comprising Env gene product, Gag gene product, Pol gene product and one antigenic marker (column 2). Thus, it would have been obvious to one of ordinary skill in the art to make and use a vector comprising a nucleic acid encoding an HIV gag (SEQ ID NO: 3) and a nucleic acid encoding an HIV

polymerase to produce HIV particles. Thus, the instant claims 68 and 72 are obvious variants of the claims from '464 in view of Rovinski.

This is a provisional obviousness-type double patenting rejection.

Applicant's arguments filed 5/19/06 have been fully considered but they are not persuasive because the argument was already addressed in the examiner's response to the previous provisional double patenting rejection.

Response to Arguments

Applicant's arguments, see pages 21-23, filed 5/19/06, with respect to 102(f) have been fully considered and are persuasive. The rejection of claims 2, 4, 5, 24, 25, 41, 68, and 74 has been withdrawn because the inventors signed a declaration under 37 CFR 1.63 filed on 2/29/00. See MPEP 2137.01(I).

Applicant's arguments, see pages 23-24, filed 5/19/06, with respect to provisional odp over 2003/0138453 have been fully considered and are persuasive. The rejection of claims 2, 4, 5, 24, 25, 41, 68, and 74 has been withdrawn because the claims were already rejected over 09/967,464 (which is the US patent application of the pre-grant publication).

Conclusion

Claims 6, 69, 71, 73, and 75 are free of the prior art of record.

Claims 6 and 75 remain objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Whiteman whose telephone number is (571) 272-0764. The examiner can normally be reached on Monday through Friday from 7:00 to 4:00 (Eastern Standard Time), with alternating Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Paras, SPE – Art Unit 1635, can be reached at (571) 272-4517.

Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Fax Center number is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

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Brian Whiteman

BRIAN WHITEMAN
PATENT EXAMINER